ARIZONA GAME AND FISH DEPARTMENT
HABITAT PARTNERSHIP COMMITTEE
HABITAT ENHANCEMENT AND WILDLIFE MANAGEMENT PROPOSAL

Game Branch / HPC Project Number:	12-603

PROJECT INFORMATION

Project Title: Sycamore Mesa Juniper Thinning (BLM)/Agua Fria Antelope Habitat Improvement Project (PNF) : Treatment Units- BLM10 and BLM 11 and PNF4

Region and Game Management Unit: Region 6, GMU 21

Local Habitat Partnership Committee (LHPC):	**Was the project presented to the LHPC?**
Payson Natural Resource Committee	**YES**[X] **NO**[]

Has this project been submitted in previous years? YES[X] **NO**[]
If Yes, was it funded? YES[] **NO**[X]→ **Funded HPC Project #(s)**:

Project Type: Grassland Restoration – Juniper tree thinning & pile burning (manual cutting)

Brief Project Summary: The project is an interagency collaboration to restore 386 acres of grassland habitat in the Agua Fria grasslands of GMU21 for the benefit of wildlife, watershed condition and fuels reduction. The treatment methods are chainsaw cutting and burning of piled juniper tree slash. Treatments are targeting known pronghorn movement corridors and core habitat patches of open grassland where juniper are slowly invading, with a goal of improving and maintaining habitat connectivity and quality for pronghorn and other grassland dependent species.

Big Game Wildlife Species to Benefit: American Pronghorn, Desert Mule Deer

Implementation Schedule (Month/Day/Year):

Project Start Date: PNF plans to start cutting in PNF4 Fall 2012 and AGFD/BLM will start cutting in BLM10 and BLM11 as soon as funding is available; Spring 2013

Project End Date: Juniper cutting by December 2013; follow up burning by Spring 2014

Environmental Compliance:
NEPA Completed: Yes[X] No[] N/A[]
Projected Completion Date: _____

State Historic Preservation Office - Archaeological Clearance:
Yes[X] No[] N/A[]
Projected Completion Date: _____

Arizona Game and Fish Department EA Checklist: N/A[]
To be Completed by: Existing EAC M09-10135849, would require memo to document, but no amendment is necessary. The memo would be completed upon project being funded.
Projected Completion Date: FY 2013/2014

PROJECT FUNDING

Special Big Game License Tag Funds Requested:	**$** 25,000.00
Cost Share or Matching Funds:	**$** 9,000.00 BLM (pending) $75,000.00 USDA-PNF RAC Title II (pending) $76,000.00 PNF $ 4,622.00 AGFD
Total Project Costs:	**$ 189,622.00**

PARTICIPANT INFORMATION		
Applicant (please print): Dana Warnecke Micah White	**Address**: 7200 E. University Ave. Mesa, AZ 85207	**E-mail**: dwarnecke@azgfd.gov mwhite@azgfd.gov
Telephone: 480-324-3547		**Date**:
AGFD Contact and Phone No. (If applicant is not AGFD personnel): Dana Warnecke, dwarnecke@azgfd.gov , 480-324-3547 AGFD Region VI, 7200 E. University Ave, Mesa, AZ, 85207		
Project has been coordinated with: Bureau of Land Management- Agua Fria National Monument manager & resource specialists; Prescott National Forest – Albert Sillas; Arizona Antelope Foundation; EZ Ranch livestock permittee Scott Smith; District Wildlife Manager Micah White; coordination with The Mule Deer Foundation and AZ Deer Association is pending		

NEED STATEMENT – PROBLEM ANALYSIS:

The loss and degradation of grassland ecosystems in central Arizona is one of several compounding factors that negatively affect the long-term sustainability of pronghorn populations. Various factors have contributed to tree/shrub encroachment, including lack of wildfire, resulting in conditions that favor tree growth and the spread of invasive species. Juniper encroachment on formerly open grasslands has led to drastic reductions in not only pronghorn habitat quality (forage and cover requirements), but also the sheer amount of suitable habitat. Encroachment affects pronghorn in two ways: (1) increasing vulnerability to predators and (2) reducing the fitness of the population by decreasing habitat connectivity. Habitat areas that remain suitable are effectively cut-off from other nearby areas, resulting in fragmentation. Such is the case in the Sycamore Mesa area on Game Management Unit 21 (GMU 21). Pronghorn population trends in GMU 21 have fluctuated over the past two decades, and transplant efforts have been used to supplement the population in 1997,1998, and most recently in 2008. The current population estimate based on the 2011 double count survey is 282 pronghorn. However annual surveys August of 2012 indicate the population numbers may have declined since 2011. Habitat fragmentation is known to negatively impact pronghorn populations by limiting dispersal and reducing genetic interchange. Juniper encroachment has contributed to habitat fragmentation in GMU 21 by reducing the amount of open grassland as well as linkages between areas. Further, the I-17 corridor and urbanization in Cordes Lakes have contributed to fragmentation as well, effectively preventing pronghorn movement between herds in eastern and western Yavapai and Coconino Counties.

In an effort to reduce fragmentation, the Arizona Game and Fish Department (Department), Bureau of Land Management (BLM), and the Prescott National Forest (PNF) have been working cooperatively on restoring grassland habitat in the vicinity of Sycamore Mesa and adjacent forest lands to the east, since 2002. Designed to restore connectivity and improve grassland habitat, the project consists of thinning and removal of juniper trees encroaching on grassland corridors in GMU 21. The primary goal is to restore connectivity between existing patches of suitable habitat. There are two substantial areas of suitable (moderate – high quality) habitat in GMU 21 separated by "middle" country. Restoring connectivity and improving habitat quality between these areas should result in benefits for the pronghorn population as well as mule deer and other native wildlife, and the grassland ecosystem as a whole. Mule deer are a species that would also benefit from treatments that increase edge between habitat types (Mule Deer Working Group 2006; Heffelfinger 2006); which this project will do by restoring open grassland mosaics bordered by juniper woodland and interior chaparral habitat. Removal of juniper from grassland should improve grassland diversity and forage value by reducing

competition for soil water and nutrients by juniper.

PROJECT OBJECTIVES:

The overall goal of this project is to restore and maintain habitat connectivity and quality for pronghorn and other grassland dependent species, by targeting treatments at known pronghorn movement corridors and core habitat patches of open grassland where juniper have slowly invaded. This collaborative, multi-agency project has been ongoing since 2002 and several treatment units have already been completed (see *Project Description and Strategies* and Figure 2- project status). This current phase proposes to treat an additional 303 acres within treatment unit BLM10 and portions of BLM11 that will connect work accomplished on BLM lands to the west (see Figures 2 and 3), with PNF lands to the east, bringing the entire project nearer to completion. Concurrently, the PNF is planning to treat 92 acres of restoration work Fall of 2012 in an adjacent treatment unit PNF 4 with a $76,000 *Integrated Resource Restoration Fund* appropriation. This past year BLM completed work on juniper thinning and burning in adjacent areas south of Sycamore Mesa (see *Project Description and Strategies* for additional information on collaborative efforts contributing to project completion).

This proposal is for treatment within the area labeled BLM10/11 (see Figure 3 and 4) of the project. The overall objectives for this ongoing project include:

A) Reestablish and maintain habitat connectivity between north and south pronghorn home ranges through habitat improvements within movement corridors.
B) Restore and maintain grassland habitat on mesas and open rolling hills within and between north and south home range areas.
C) Utilize various methods of habitat improvements including juniper and mesquite tree thinning, brush management, prescribed fire, reseeding and fence modifications to achieve objectives.
D) Conduct activities within prioritized areas in phases over time to optimize benefits to pronghorn and grassland species, and coordinate with other permitted uses on the landscape.
E) Collaborate with partners to develop a comprehensive funding strategy, implementation plan, and on NEPA compliance.

Expected Benefits:

Restoration of movement corridors and grassland habitat will facilitate movement of pronghorn between northern and southern habitat in the unit; promote genetic exchange between individual groups of the population; improve habitat carrying capacity and suitability; decrease vulnerability to predation, and protect the long-term viability of the GMU 21 population. Additionally, the project will benefit other grassland species that rely on habitat in GMU 21. Reduction of tree and brush encroachment will release nutrients and available soil moisture for the benefit of desirable grass, forb, and shrub species. This should have a positive impact on grassland plant species diversity over time, thereby improving the quality of wildlife habitat. Further, special status species occur within numerous riparian habitats and streams that bisect the grassland habitat. Grassland restoration will improve watershed condition and trend, thereby contributing to the protection and maintenance of water quality and quantity within the project area over long-term timeframes.

This project is consistent with Species-Specific Strategies in the Game Management Subprogram of Wildlife 2012; Habitat Evaluation, Protection and Management Project Narrative and Region VI Habitat Program Annual Work Plan; Pronghorn Management Guidelines. This project also coincides directly with the mission and goals of the Central Arizona Grassland Strategy (CAGS) (2010); an interagency strategy between Arizona Game and Fish Department, Bureau of Land Management, and

the Tonto and Prescott National Forests and is one of the many projects currently being implemented to fulfill strategy goals. The strategy promotes conservation and restoration of grasslands for the benefit of native wildlife and plants within central Arizona (Apache Highlands) including the Agua Fria grasslands (GMU21) and extending into the Prescott and Chino Valley areas (See Figure 1). The primary purpose for the CAGCS is to guide an integrated management approach for conservation and restoration of grassland ecosystems and associated pronghorn populations in central Arizona across a variety of jurisdictional boundaries. The strategy involves 3 primary management goals:

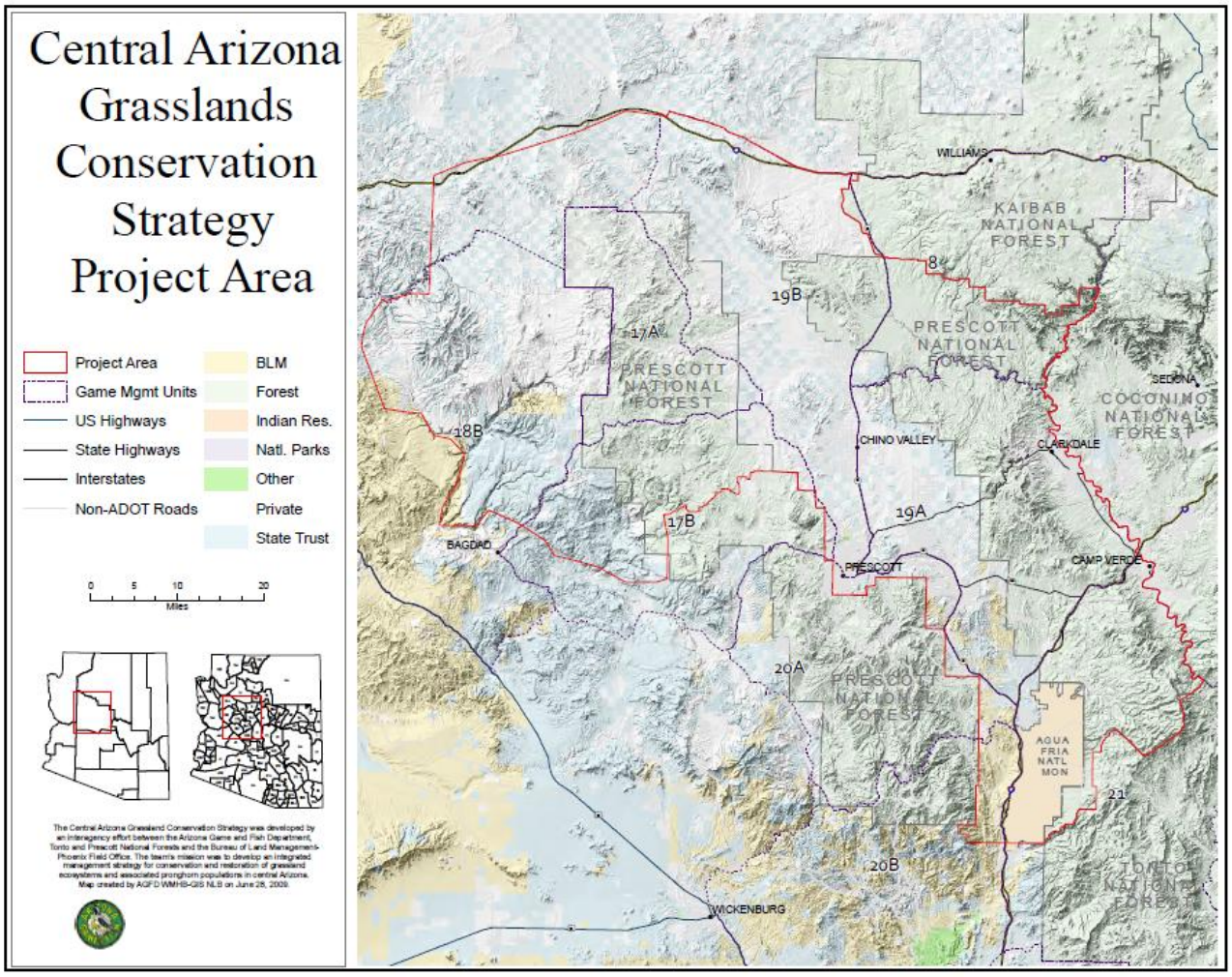
- Restore and maintain native grassland ecosystems.
- Maintain self-sustaining pronghorn populations and other grassland obligate species in central Arizona
- Develop a team that will be responsible for the implementation of the CAGCS. This team will be known as the CAGCS Implementation Team.

The strategy provides management options for agencies, private landowners and other stakeholders utilizing objectives and strategies that tier to each goal. Continued implementation of this project would accomplish CAGCS goals for grassland restoration and pronghorn habitat management.

The specific CAGCS objectives and strategies for Area 3: GMU 21, pertinent to the proposed activities include:

- Improve grassland species diversity; reduce cactus, shrub, and tree encroachment
  - Mechanical thinning (Agra-axe, chainsaws, brush crusher, brush shredding, chaining)
  - Prescribed Fire
  - Develop site specific treatment priorities and methods
- Utilize fire to restore grassland ecosystem processes
  - Develop prescribed fire plans that integrate between administrative boundaries
- Coordinate with agencies and stake holders to protect and maintain native grassland characteristics and wildlife habitat requirements (cover and forage)
- Maintain or restore habitat connectivity
  - Identify movement corridors, barriers and specific restoration actions
- Maintain population management goals for growth, maintenance and harvest
  - Identify and map core habitat, fawning ground areas, nurseries, and corridors and use information to prioritize conservation management actions
- Increase collaborative relationships / opportunities towards conservation goals
  - Develop with stakeholder's management agreements, conservation easements, acquisitions, land exchanges, revolving land purchases, grass banks, and habitat improvement projects

Figure 1– Central Arizona Grasslands Conservation Strategy project area.



PROJECT DESCRIPTION AND STRATEGIES:

This project is ongoing and was initiated in 2002 by BLM and 2006 by AGFD. There are 5,751 acres currently identified for treatment, with 2,367 acres occurring on the Prescott National Forest and 3,384 acres occurring on the Agua Fria National Monument (AFNM). To date, 2,578 acres out of the targeted 5,751 have been treated, representing a 45% project completion. The project is divided into 31 treatment units (See Figure 2) of varying acreages and ownership. Not all of the acres within the planned 5,751 acres will be treated. Final acreages to be cut within planned areas are determined after field evaluation and contract refinement. Most recently, Units 2 and 12 (See Figure 2) were treated in 2011 on the PNF portions of the project area. Approximately 20% (~94 acres) of Unit 12 remains to be treated pending funding. A total of 367 acres were treated at an average cost of $232.00 per acre, totaling $85,300.42.

Work is planned in such a way as to group treatment areas to decrease travel costs by contracted work crews as well as consolidate post-thinning prescribed fire applications by BLM/PNF fire crews. This next phase of the project will focus on treatment units BLM10, BLM11, and PNF4. This proposal, submitted for funding by the HPC, is a partial funding request to contribute towards costs to cut treatment unit BLM10/11. In addition to this funding request, the Department in coordination with the PNF and BLM has submitted a request for an additional $75,000 to the USDA Forest Service, Prescott National Forest Resource Advisory Committee (RAC) for additional project funding through the Title II grants program (Secure Rural Schools Public Law 110-343). Concurrently, the PNF will contract

juniper thinning Fall of 2012, using a $76,000 Integrated Resource Restoration Fund appropriation, to cut juniper trees and conduct post-thinning prescribed fire of unit PNF4 (~92 acres) and possibly additional acres in other PNF units; to the extent that $76,000 worth of funding will allow pending contractor bids.

After juniper trees are cut and piled, piles are left to dry typically for a period of 6mo-1yr in preparation for prescribed fire. Overall project implementation strategies have been to conduct juniper cutting during the late fall, winter and spring months and to follow up with prescribed fire during the following fall and early winter months. PNF and BLM fire crews will coordinate post-thinning prescribed fire, most likely Fall of 2013. The BLM has committed to seek FY14 funding to conduct post-thinning prescribed fire to finish the treatments in BLM10 and BLM11; however they will not know until June/July of 2013 whether they receive the budget appropriation. Therefore, at this time the Department is seeking RAC funding for both juniper thinning and prescribed fire to accomplish BLM10 and portions of BLM11. If BLM receives FY14 funding for prescribed fire the entire portion of the RAC funding would be used for contract juniper cutting. In summary, the interagency goals for this phase of the project are to complete the following treatment units (juniper thinning and prescribed fire) between Fall of 2012 and Spring of 2014 pending funding awards:

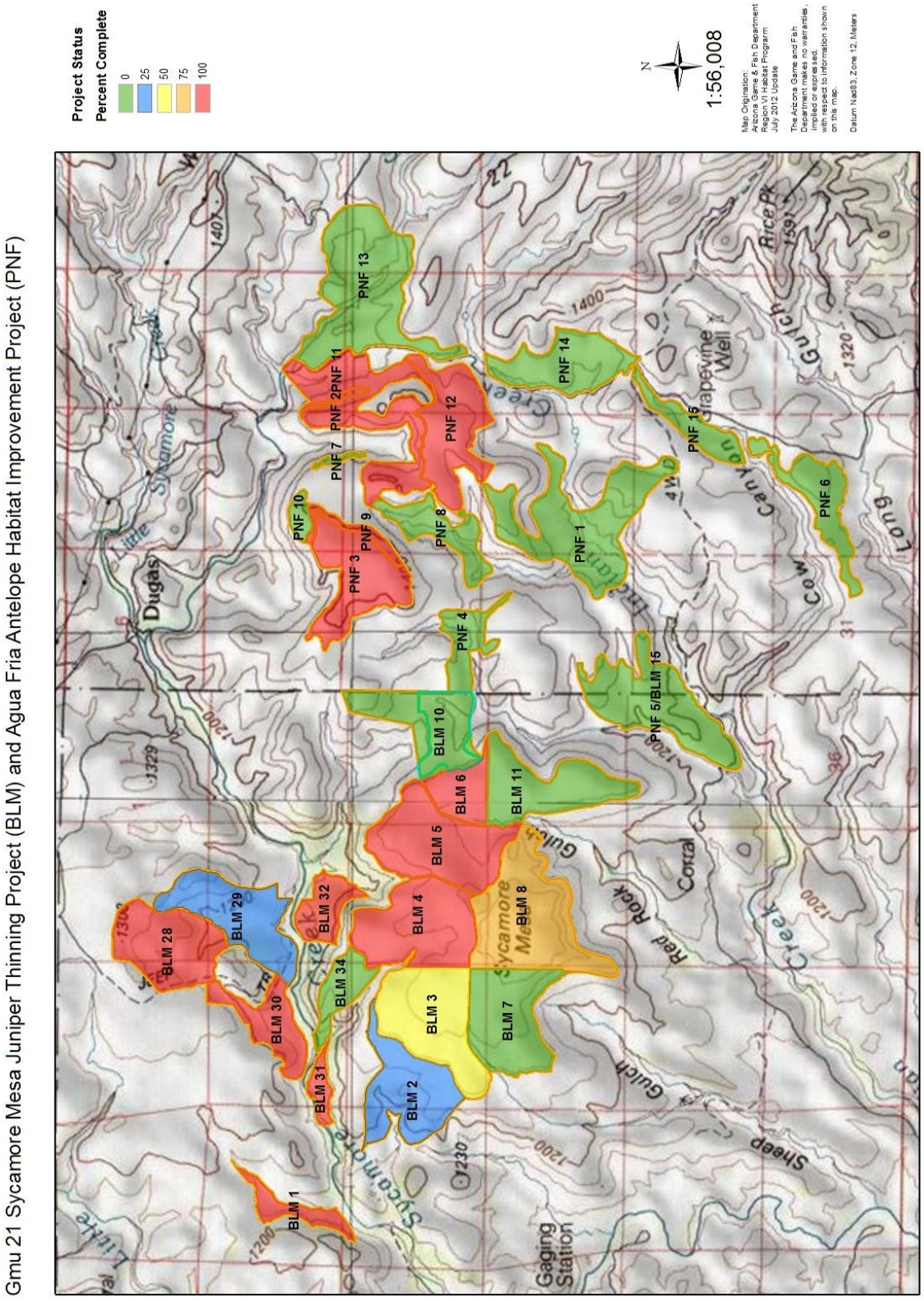
Treatment Unit	Proposed Acres	Funding Sources	Estimated Cost	Task
BLM10/ BLM11	217	Proposed RAC	75,000.00	Cutting/Prescribed Fire
BLM10/ BLM11	78	Proposed HPC	25,000.00	Cutting/Prescribed Fire
PNF4	92	Secured PNF-FY2012 Budget	76,000.00	Cutting/Prescribed Fire
Totals	**386**		**176,000.00**	

If this phase of the project is fully funded by HPC and RAC we will accomplish treatment of another 395 acres of the overall project; bringing the treated acres from 2578 to 2964; or 52% of the overall project acreage and 14 out of the 34 units completed and a few others near completion.

The treatment methodologies include hand thinning of juniper trees with chain saws, piling of slash on cut tree stumps, limited lop and scatter, and follow-up burning of piles to ensure tree mortality. The following treatment specifications and implementation constraints are required by AGFD/PNF/BLM from contracted service providers and stipulated in contracts:

- Cut and pile; lop & scatter only in drainages.
- Cut stumps as close to natural barriers (ground/rock) as possible.
- Limited lop & scatter (75% pile / 25% pile); all lop & scatter will be cut to a height above ground level of not >18-24" or even with drainage depth
- Slash from trees cut will be piled on stumps in prep for burning; all green limbs should be cut from stumps
- Grassland treatment areas will be a target leave density of 1-3 trees/acre; mixed age and size; clear cut in areas of natural openness and leave trees in areas of high density pretreatment. If there are large trees currently being used by ungulates for shade prioritize those as leave trees while still meeting multi-age prescription requirements.
- Avoid archaeological sites;
- On PNF vehicular off-road travel limited to quad for transport of equipment only; minimize quad trail by avoiding repeated travel routes. To be coordinated with AGFD Project Mgr and Prescott National Forest.
- On BLM no off-road travel allowed; all equipment transport from designated open roads per the AFNM Resource Management Plan
- Treatment buffers pers PNF NEPA decision along Indian Creek Drainage- tributaries to Indian Creek 50 ft. buffer; pile for burning outside buffer and limited lop & scatter within drainages.

Figure 2 – Project overview and status map.



The BLM and PNF have provided overarching treatment prescriptions (see Attachment 1 for PNF) and provide site specific coordination where prescriptions need to be adjusted to meet restoration goals for pronghorn (e.g. increase #trees cut per acre or open some areas more than others). Generally the prescription is to cut and remove most trees in grassland areas and reduce densities to 1-5 trees per acre of mixed age class in woodlands on the fringes of grasslands. In some locations the goal is to open up a corridor through a patch of woodlands; and in those locations densities are reduced to 0-1 tree per acre. There are no constraints on size and the goal is to leave a mixed age class.

Initially project treatment areas were identified based on information from a statewide pronghorn habitat quality assessment conducted by AGFD Research Branch (Ockenfelds et al. 1996) that identified habitat issues by township/range and section, including juniper encroachment. Project plans were further refined by review of pronghorn distributions and habitat use (telemetry data from the late 1990s and survey data from the 2000's). Lastly, field investigations and mapping (superimposed slope classifications 0-10, 11-20, and >40% onto aerial imagery that shows tree densities) were used to refine treatment targets to those areas that are most suitable for pronghorn.

In January of 2012 the BLM in cooperation with AGFD and PNF initiated a pronghorn telemetry project to evaluate where pronghorn may attempt to cross the I-17 highway; and to evaluate pronghorn habitat use as it relates to past prescribed fires and juniper thinning. The data collected to date has been used as an overlay on the treatment units simply for the purpose of predicting and refining where to potentially target limited resources to complete the project (See Figures 3 & 4) as a full analysis has not been done to date. The proposed cut (BLM10/11 and PNF4) is a swath functioning primarily as a narrow corridor between more open mesa habitats. The topography includes a rocky mesa ridgeline where juniper trees are thick (20-40 stems/acre) with an elevation gradient of about 200' into a drainage bottom that then opens into open grassland habitat. In this area, the treatment goal would be to remove tree densities to the 0-1 trees per acre target (see photo below looking to the east from the mesa ridgeline into the drainage bottom).

The treatment includes hand cut and piling of juniper trees by chainsaw crews followed by ignition of cut trees by BLM and PNF fire crews. In some areas, the fire plans may include broadcast burning. Archaeological and topographical constraints eliminated mechanical treatment options. AGFD is primarily funding chainsaw crews and BLM and PNF are contributing fire crews from their agency budgets and other available federal funds. The treatment combines cutting and fire to minimize the

resprout of cut trees, efficiently remove pronghorn predator hiding cover (trees and cut tree piles), minimize extensive piles of slash (a known barrier to pronghorn movement) that would result from a lop and scatter treatment only, and restore the natural openness of grassland habitat preferred by pronghorn and other grassland obligate species. Reducing juniper tree densities in the grassland would improve grass and forb ground cover by removing competition for water and nutrients. Improvements in ground cover would contribute to overall improved watershed conditions and range resources.

PROJECT LOCATION:
The entire project area is located on and around Sycamore Mesa, at T11N, R3 and 4E (see Figure 1-5). The overall project occurs on PNF and the Agua Fria National Monument (AFNM), administered by the BLM. The proposed treatment BLM10 and BLM11 is on the AFNM. The area is bounded by Interstate 17 and Dugas Road to the west and north, respectively. Bloody Basin Road is to the south and the mountainous area of the Pine Mountain Wilderness Area lies to the east. Cordes Junction is southwest of the project site.

LAND OWNERSHIP AT THE PROJECT SITE(S)*:*
(if the project area is <u>private property,</u> please state specifically and provide the landowner's name)

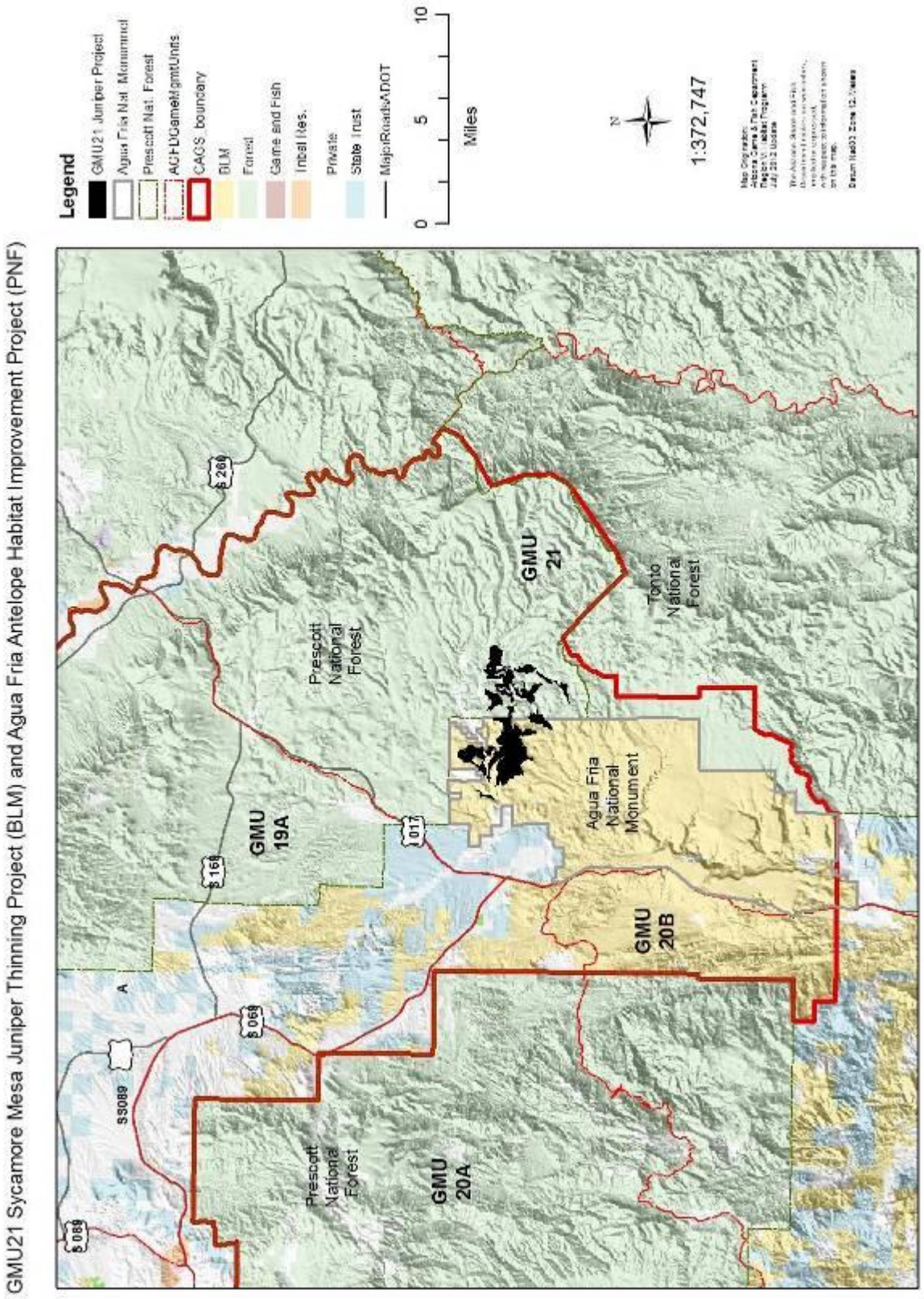
The project falls within the Central Arizona Grasslands Strategy planning Area #3- GMU21 Agua Fria Grasslands (Figure 1); Project is located on BLM-Phoenix District/Hassayampa Field Office within the Agua Fria National Monument (AFNM) and on the Prescott National Forest-Verde Ranger District (Figure 2); The entire project is located on and around Sycamore Mesa - treatment units BLM10 and BLM11 and PNF4 (Figure 4).
IF PRIVATE PROPERTY, IS THERE A COOPERATIVE BIG GAME STEWARDSHIP or LANDOWNER AGREEMENT BETWEEN THE LANDOWNER AND THE DEPARTMENT?
YES[] NO[] N/A[X]

HABITAT DESCRIPTION:
The habitat vegetation types within the primary project area consist mostly of semi-desert grasslands interspersed with pinyon-juniper woodland on mesas; bisected by canyons with interior chaparral and riparian deciduous forest. The elevation range across the site ranges from about 3,600-4,600 feet.

ITEMIZED USE OF FUNDS:
To date the running average for juniper cutting contractor costs is $282.00/acre and $40.00/acre for prescribed fire by BLM/PNF fire crews. This equates to an average cost of $322.00/acre to complete the grassland restoration treatments prescribed for the project area. Currently, 2578 acres out of a target 5,781 have been treated, with 3,173 acres remaining. Total project completion costs are estimated at $1,021,706.00 (cutting and burning) based on the running average of costs to date. However, prior to contracting each treatment unit is re-evaluated and treatment areas refined to target cutting to priority areas within the overall unit that meet project goals. To date most units have not required 100% treatment, therefore we expect total project costs to be somewhat less than estimated.

Costs vary for each unit depending on tree densities, size, and difficulty in accessing cutting areas for contractors. There is flexibility in designing the treatment unit to meet funding limitations on an annual basis by reducing the overall acreage target for treatment. Once funding is awarded site visits will be conducted with interested contractors to secure final bids for work. Treatment acreages may be adjusted slightly based on final bids.

Figure 3. Project location- Prescott National Forest and BLM/Agua Fria National Monument



The following table summarizes the proposed budget to complete treatments in units BLM10, BLM11 and PNF4:

Treatment Unit	Proposed Acres	Funding Sources	Estimated Cost	Task
BLM10/ BLM11	217	Proposed RAC	75,000.00	Cutting/Prescribed Fire
BLM10/ BLM11	77	Proposed HPC	25,000.00	Cutting/Prescribed Fire
PNF4	92	Secured PNF-FY2012 Budget	76,000.00	Cutting/Prescribed Fire
		AGFD	4,622.00	Project Administration
Totals	**386**		**189,622.00**	

Special Big Game License Tag Funds - $25,000 (rounded to the nearest 1,000th)

Funds to be used solely for the purpose of contracting the services of hand cutting juniper and piling and to fund BLM fire crews to conduct post-treatment prescribed fire to burn cut juniper piles. The request is to fund 77 acres of grassland restoration work.

Task	Itemized cost	Total Cost
Contracted Tree Cutting	Running average project cost estimated at $282.00/acre 77 acres * 282.00 =	21,714.00
Prescribed Fire	Hand ignition of cut juniper piles by BLM fire crews estimated at $40.00/acre	3,080.00
Totals		24,794.00

Cost Share or Matching Funds (*for volunteer labor rates please refer to the worksheet below*) -

BLM - $9,000.00 pending FY14 budget allocation
After juniper are cut and piled BLM and possibly PNF fire crews would burn the piles to complete the treatment. The costs for the BLM and PNF fire crews are variable depending on the amount of acreage to burn and whether it is a joint BLM/FS fire crew or accomplished by an individual agency. BLM estimates cost share for fire crews at $40.00/acre. We estimate the cost share for 225 acres in BLM10/11 at $9,000.00 per the BLM Fire Management Officer. The PNF is planning to cut juniper in an adjacent area (PNF4, see Figure 1) and anticipates partnering with BLM on the post-treatment prescribed fires Fall of 2013/Winter 2014. Because BLM will not submit this budget request until March 2013 with budget notifications summer of 2013; we do not include this contribution in the budget summary outlined above for overall project costs and contributions.

AGFD Region VI Habitat Program cost share from Program budget - $4622.00 estimated
Cost share estimates are based on past project implementation.

Contribution	Itemized cost	Total Cost
Salary/Labor	120 hours @ $33.62/hour	4035.00
Travel/per diem	AGFD travel/per diem rates	150.00
Vehicle costs	approximately 10 site visits @ ~225 miles round trip 2250 miles x .0378/mile= $85.05 + $370.00 (gas)	437.00
Totals		$4622.00

PNF – ***$76,000.00 Integrated Resource Restoration Funding FY12: secured***
PNF will contract juniper tree cutting Fall 2012 in treatment unit PNF4 and conduct post-treatment prescribed fire with PNF fire crews. They plan to allocate $56,000.00 towards tree cutting and $20,000.00 towards prescribed fire and accomplish 92 acres (possibly more pending

contracting costs).

RAC – ***$75,000 to the USDA Forest Service, Prescott National Forest Resource Advisory Committee (RAC): application submitted August 2012 and funding decisions pending in September 2012.***

Grant request for additional project funding through the Title II grants program (Secure Rural Schools Public Law 110-343). Title II funds would assist in accomplishing treatment units BLM10 and BLM11; along with match from HPC funding request for $25,000.00. Any additional funds available would be utilized to continue the treatment of units prioritized on the PNF. PNF has secured $76,000 to complete treatment unit PNF4.

Contribution	Itemized cost	Total Cost
Grant/Contract Administration	Mandatory line item for AGFD Administration	1292.00
FS indirect costs	Mandatory 5% line item for Forest Service Administration	3750.00
Contracted tree cutting		69,958.00
Totals		75,000.00

The following table summarizes the proposed budget to complete treatments in units BLM10, BLM11 and PNF4:

Treatment Unit	Proposed Acres	Funding Sources	Estimated Cost	Task
BLM10/ BLM11	217	Proposed RAC	75,000.00	Cutting/Prescribed Fire
BLM10/ BLM11	77	Proposed HPC	25,000.00	Cutting/Prescribed Fire
PNF4	92	Secured PNF-FY2012 Budget	76,000.00	Cutting/Prescribed Fire
		AGFD	4,622.00	Project Administration
Totals	**386**		**180,622.00**	

LIST COOPERATORS AND DESCRIBE POTENTIAL PARTICIPATION:

BLM –
BLM would be providing fire crews to conduct hand ignition of cut juniper piles. BLM would also allocate personnel resources to conduct pre-project planning, development of treatment specifications for AGFD contracting and coordination with AGFD and contractors as needed (unquantified).

The BLM and AGFD have a Cooperative Agreement (AGFD No. AAA080038 – Healthy Lands Initiative Projects – Central AZ Grasslands) for the purpose of sharing the costs of cooperative projects and for implementation of the "*Central Arizona Grassland Conservation Strategy*" intended to benefit all locally native wildlife and plant species including special emphasis on pronghorn and mule deer habitat. On occasion BLM transfers federal funding to AGFD for project implementation as available. This agreement would facilitate AGFD ability to allocate HPC funding to BLM for prescribed fire tasks associated with this proposed project.

AGFD –
The Department would be hiring and monitoring the contractor who would perform the thinning operation. Project oversight would be a cost share by the AGFD Region VI Habitat Program and would

involve: interagency coordination, mapping and flagging the unit boundary, meeting with contractors for the bidding process, administering contracts and monitoring contractors during implementation, establishing photo-points and preparing a brief completion report.

PNF –
PNF would be providing project oversight of juniper thinning and post-treatment prescribed fire for unit PNF4. This will include interagency coordination, contract administration and monitoring, and project completion documentation as required by PNF.

Overall Project Summary –
To date the following funding for contract labor has been allocated towards this project through AGFD:

- AGFD Wildlife Conservation Fund or G&F fund- $361,596
- BLM Healthy Lands Initiative Cost Share Agreement- $130,000

Total $491,596

Additionally, the BLM/AGFD/PNF have contributed towards project completion through commitment of staff and monetary resources to complete environmental documentation and project planning; fire crews to conduct pile burning activities; and funding to contract juniper cutting. Currently, total costs are not available for summary.

The following Environmental Documentation has been completed to date:

- NEPA/Arch completed: Forest Service (Decision Memo for Agua Fria Antelope Habitat Improvement Project; 9/10/09) and BLM (FONSI/DR for Agua Fria Grassland Fuels Reduction Project Environmental Assessment No. AZ-020-2004-005; 4/13/2005 ***and*** DNA for Additional Juniper Thinning for Agua Fria National Monument AZ-230-2009-001; 1/12/2009)
- FS/AGFD Cooperative Agreement completed Jan. 5, 2010
- AGFD EA Checklists complete for both BLM and FS project areas- 11-2-05; amended 6-26-08; amended 10-30-09 (EAC M09-10135849)

If the project is funded the current AGFD EA Checklist (EAC M09-10135849) will require an amendment to update with this years plans to treat BLM10/11. No additional environmental clearances are required by federal partners.

WOULD IMPLEMENTATION OF THIS PROJECT ASSIST IN PROVIDING, MAINTAINING, OR FACILITATING RECREATIONAL ACCESS?
YES[] NO[] N/A[X]

PROJECT MONITORING PLAN:
AGFD Region VI Habitat Program would provide contract administration activities including: interagency coordination, mapping and flagging the unit boundary, meeting with contractors for the bidding process, administering contracts and monitoring contractors during implementation, establishing photo-points and preparing a brief completion report. Contract oversight would include a pre-project meeting on site to identify project boundaries and review project specifications. AGFD would conduct periodic site visits to check on contractor progress and would meet with the contractor for a project completion walk through to ensure contract specifications have been met.

Photopoint monitoring pre and post treatment would be used to document the reduction of juniper tree densities within treatment areas. Photopoints would be established to provide representation of the

treatment area from several different vantage points. Methods would include:

- Record of the geographical location of the photopoint using GPS
- Digital photo replications during treatments including: precut, postcut and postfire

A completion report would include pre and post treatment photographs, maps treatment area and photopoint locations for orientation and interpretation, treatment description and completion acreages

PROJECT MAINTENANCE:
Periodic broadcast burning by the BLM and PNF commensurate with their respective land management and fuels and fire management plans should reduce the reestablishment of juniper trees into the treatment areas. However, the time intervals between prescribed and/or natural fires, as well as grazing management influence the maintenance of healthy grasslands. Both of these factors are strictly managed under the authority of the federal land management partners, BLM and PNF. The BLM currently implements prescribed fire and juniper thinning under the "Agua Fria Grassland Fuels Reduction Project Environmental Assessment No. AZ-020-2004-005. The Southwestern Region of the Forest Service is operating under the "Central Priority" that emphasizes restoration of fire adapted ecosystems, which grasslands are a major component. Both the PNF and the adjacent forest, the Tonto National Forest have and continue to actively manag the use of prescribed fires across the Agua Fria grasslands area.

Future maintenance activities may require juniper thinning and removal through hand cutting or mechanical treatments. Treatment areas have and continue to be documented by AGFD, so tracking and future evaluation for maintenance activity can be evaluated and planned. Interagency partnerships associated with the CAGS, as well as non-agency partners is critical to sustain focus and resources towards grassland conservation and management.

PROJECT COMPLETION REPORT TO BE FILED BY:
Project Lead (Dana Warnecke, AGFD) will be responsible for a short completion report with photo documentation before and after treatments and updated maps of project completion. A project tracking database has also been developed to track costs, acreages, treatment years and other implementation related information.

WATER DEVELOPMENT PROJECTS (*please use the worksheet below***):**
No

TREE CLEARING/REMOVAL PROJECTS (*please use the worksheet below***):**
Yes…see worksheet.

ARIZONA GAME AND FISH DEPARTMENT
WATER DEVELOPMENT WORKSHEET

PROJECT TITLE:_____

1) Is the water development listed as a priority in the most recent "Wildlife Water Development Annual Implementation Schedule?"

2) Please list the Development Branch personnel and date coordinated with for this project.

3) What is the estimated annual inches of precipitation for the area? (mark one)
[]2-4 []4-6 []6-8 []8-10 []10-12 []12-14 []14-16 []>16

4) Is there a perennial water source available to big game within four miles of this project?

YES[] (please complete #5 below) NO[] (skip #5 below**)**

5) For the accessible, perennial water source nearest this project:
Name of water source:
Type of water source (catchment, spring, dirt tank):
Ownership of water source:
Distance in miles from project:

6) Is the target wildlife species a result of transplant efforts? YES[] NO[]

7) Please list any special land management status for the project site (i.e. Wilderness, National Park, National Monument). If private land, list landowner.

8) Please provide the following information about access to the proposed site:
Type of access (mark one): []2x4 vehicles []4x4 only []foot only**

**If foot access only: Distance in miles:_____ Approximate hiking time: _____

-- Does access to this site require crossing private or tribal lands? YES[] NO[]

-- Please describe any restrictions to public access:

9) Please list below (or on a separate sheet) the material type and dimensions of each component proposed to be added, modified, or repaired.

10) Was a site visit completed? Yes[] No[]
If Yes, please list personnel that attended and date.

ARIZONA GAME AND FISH DEPARTMENT
TREE CLEARING/REMOVAL WORKSHEET

PROJECT TITLE: Sycamore Mesa Juniper Thinning Project

1) What is the estimated acreage of the project?
5751(total); 2578 completed to date. Current plans are to treat 386 acres which would bring completed acreage to 2964 or 52% of the overall project acreage and 14 out of 34 units completed and a few others near completion.

2) How are the trees going to be cleared? (agra axe, chain saw, grubbing, push, chaining):
Trees are handcut with chain saws; and a portion piled on stump for burning and the remainder lopped and scattered to contract specifications (see Project Description and Strategies). Piles are then burned by BLM/PNF fire crews after trees have dried sufficiently to burn. Crews are using hand ignition of piles. Spring/Winter cuts are followed by burning in the fall.

3) What is the estimated number of trees per acre?
The number varies. Open mesa tops tend to have lighter densities, 0-10 trees/acre; edges and slopes off the mesas and in canyons tend to have densities approaching 20-40 trees/acre (woodland areas). Treatment targets are to leave 0-3 trees/acre in open areas and not more than 3-5 trees in woodland areas; with treatments designed to mimic the natural open vs woodland canopy cover; except where narrow corridors <100' wide are being treated and in these areas the goal is to remove all trees.

4) Describe trees to be cleared (species, estimated diameter, single stem, multi-stem):
Utah juniper (*Juniperus osteosperma*) and one-seed juniper (*Juniperus monosperma*) of varying diameter. Trees are single and mult-stemmed and the majority are 10-14 feet tall with 12"+ root collars for single stemmed species and 24"+ root collars for multi-stemmed species.

5) Describe terrain (slope, soil type, rocks)
Terrain is characterized by mesa tops with 0-5% slopes interspersed with elevational gradients between mesa tops that are rocky and usually >10% slope. These steep slopes and rocky outcrops typically have the highest densities of juniper trees. Mesas are bisected by small drainages and canyons as well.

6) Please list any special land management status for the project site (e.g. Wilderness, National Park, National Monument). If private land, list landowner.
A portion of the project occurs on the Agua Fria National Monument. The remainder is on the Prescott National Forest.

7) Please provide the following information about access to the proposed site:
Type of access (mark one): []2x4 vehicles [X]4x4 only [X]Foot only**

**If foot access only: Distance in miles: Approx. hiking time: 30 minutes with equipment

The project site requires high clearance and/or 4x4 vehicle access on designated open roads within the PNF and AFNM. Additionally work crews must hike approximately ½ - 1 mile to access the project area from the road.

Does access to this site require crossing private or tribal lands? YES[X] NO[]

Yes and we have had permission throughout the duration of the project.

Is the site relatively accessible for tree removal equipment? YES[X] NO[]

Please describe any restrictions to public access:

On BLM lands, AFNM, no offroad travel is allowed; all equipment transport from designated open roads pers AFNM Resource Management Plan.

On PNF vehicular offroad travel is limited to quad for transport of equipment only; minimize quad trail by avoiding repeated travel routes. To be coordinated with AGFD Project Mgr and Prescott National Forest.

ARIZONA GAME AND FISH DEPARTMENT
VOLUNTEER HOURLY RATES AND CLASSIFICATIONS WORKSHEET

PROJECT TITLE: _____

The value of volunteer labor should be calculated at the hourly rate of an employee doing similar work, or using hourly rates from the Arizona Department of Administration's Human Resource web site, plus a standard ERE rate of 35%. http://www.hr.az.gov/HR_Professional/Class_Comp/PDF/alphacovered.pdf

$0.445/mile should be the calculation used for mileage.

Water Development	**Volunteer Hours**	**Volunteer Miles**	**Hourly Rate**	**Estimated Value**
			$14.14	
Habitat Restoration and Clean Up	**Volunteer Hours**	**Volunteer Miles**	**Hourly Rate**	**Estimated Value**
			$14.14	
Fisheries	**Volunteer Hours**	**Volunteer Miles**	**Hourly Rate**	**Estimated Value**
			$14.14	
Nongame Branch Project	**Volunteer Hours**	**Volunteer Miles**	**Hourly Rate**	**Estimated Value**
			$14.14	
Misc/office work	**Volunteer Hours**	**Volunteer Miles**	**Hourly Rate**	**Estimated Value**
			varies	
Community Services	**Volunteer Hours**	**Volunteer Miles**	**Hourly Rate**	**Estimated Value**
			$7.44	
Events and Other	**Volunteer Hours**	**Volunteer Miles**	**Hourly Rate**	**Estimated Value**
			$14.14	
Research Branch	**Volunteer Hours**	**Volunteer Miles**	**Hourly Rate**	**Estimated Value**
			$14.14	
Wildlife Area Hosts	**Volunteer Hours**	**Volunteer Miles**	**Hourly Rate**	**Estimated Value**
			$17.44	
Education Programs	**Volunteer Hours**	**Volunteer Miles**	**Hourly Rate**	**Estimated Value**
			$16.07	
Totals				

Figure 4 – Proposed treatment units BLM10 and BLM11 with 2012 pronghorn telemetry data overlayed.

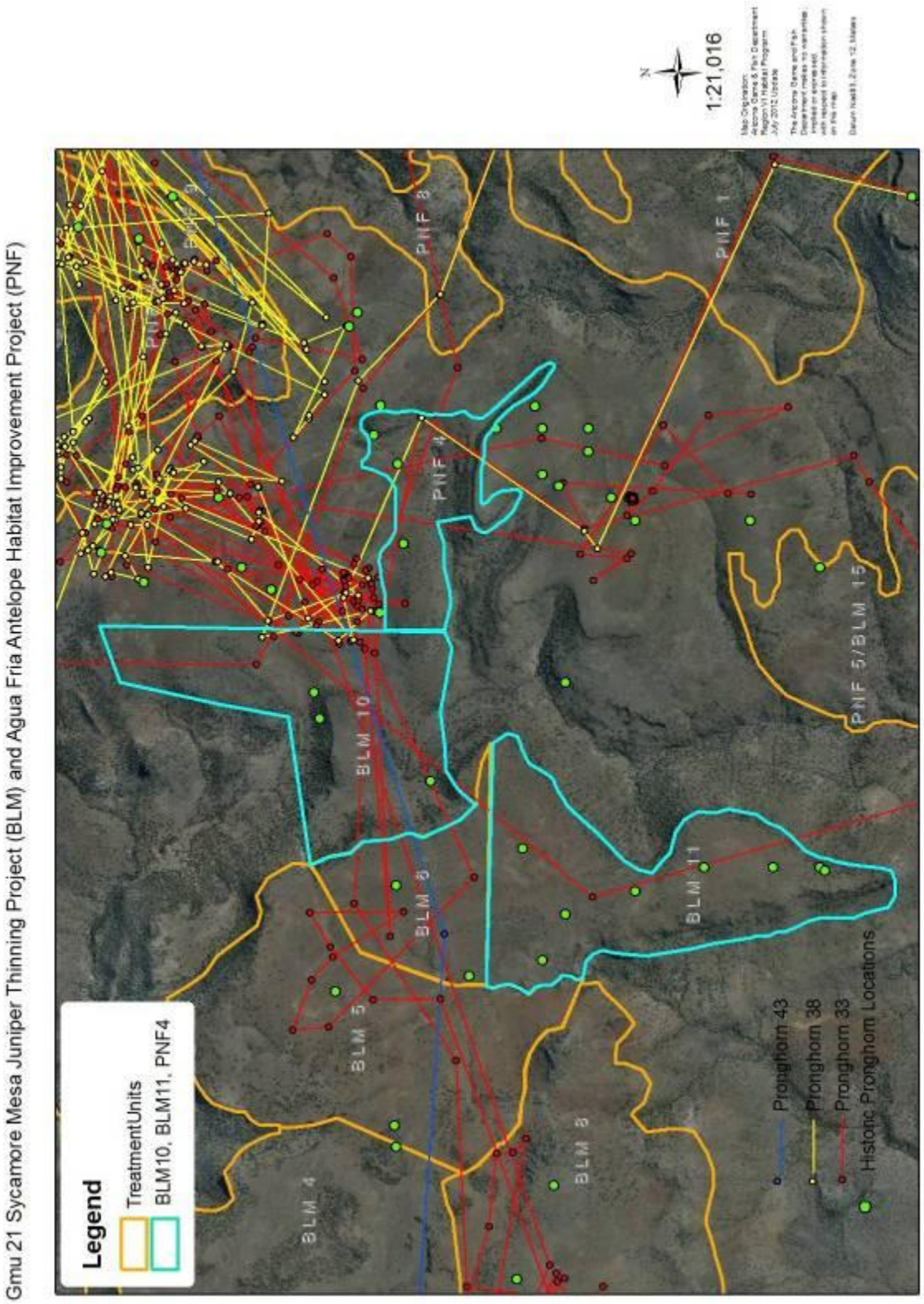
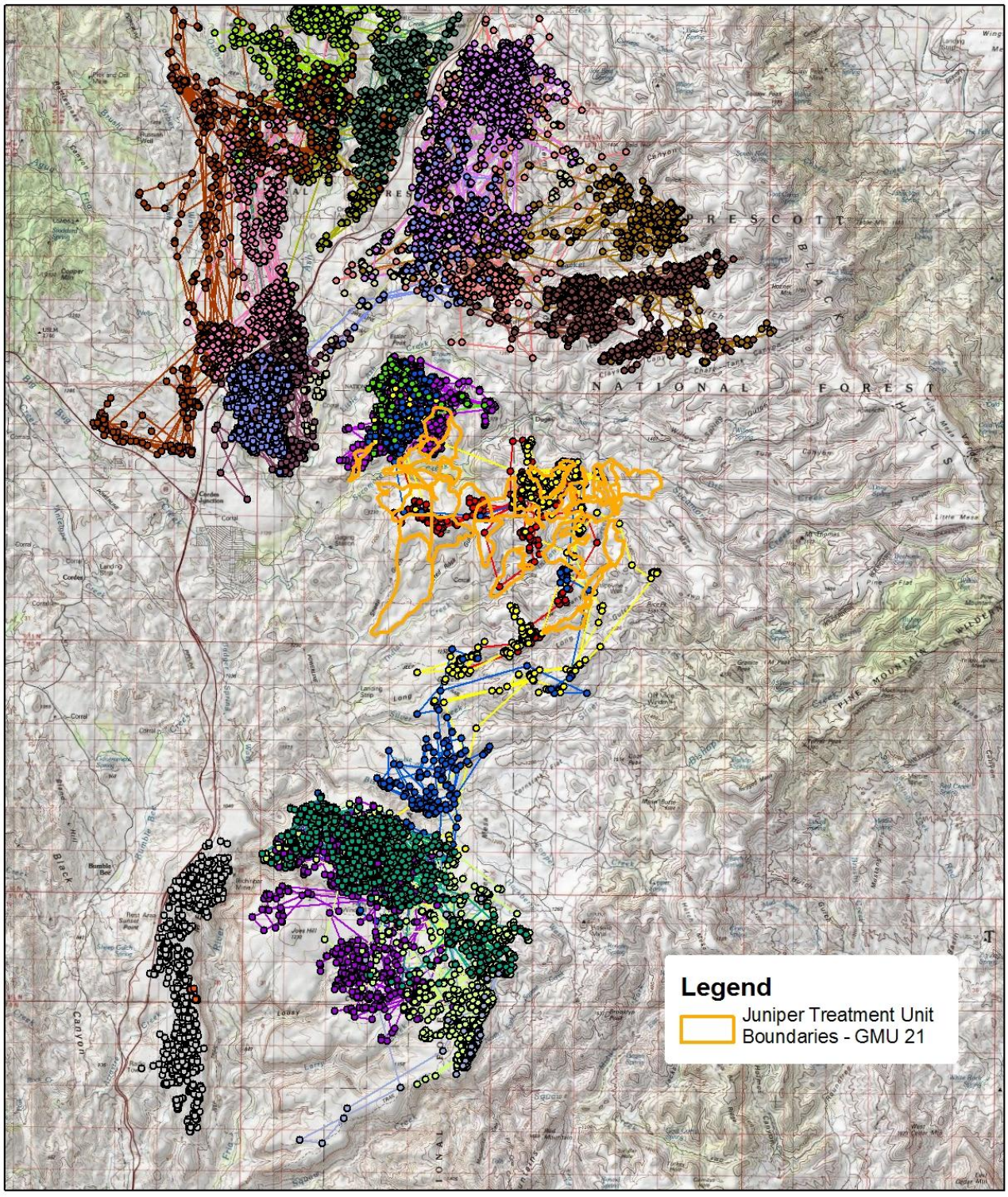


Figure 5 – Overview of Sycamore Mesa Juniper Thinning (BLM)/Agua Fria Antelope Habitat Improvement Project (PNF); 2012 pronghorn telemetry data overlay to illustrate pronghorn habitat use related to targeted juniper treatments.



Attachment 1: **PNF DETAILED PRESCRIPTION**

Data Base		Silviculturist:	*/s/ M Manthei*
Location			*K Wetzstein*
Site	Agua Fria	Date:	October 8, 2009

PROJECT NAME: Agua Fria Phase 1 – Treatment Units 2, 3, 7, 9, 10, 11, 12 – 859 Acres

EXISTING / DESIRED FUTURE CONDITION:

Mid aged Utah and One-seed Juniper (*Juniperus osteosperma* and *monosperma*) with highly variable stocking ranging between 5-80 ft² of basal area (BA). Open grasslands have been encroached by Juniper, but patches of grasslands remain. Overall canopy cover averages 5 – 50%. Understory vegetation consists of a limited amount of grasses and forbs, Turbinella Oak (*Quercus turbinella*), Catclaw (*Acacia gregii*) and chaparral species. Much of the site is rocky with exposed soils and very little herbaceous cover.

The desired future condition is to maintain a mixture of healthy, vigorous open grown Juniper with a significant grass/forb understory, and open grasslands that encourage the movement of pronghorn antelope. Stocking levels will be designed to increase the potential for herbaceous plant diversity, higher vegetative ground cover, and improved frequency of perennial plants.

TREATMENT OBJECTIVES:

- Reduce current density to allow the potential for increased herbaceous cover.
- Promote uneven aged stand conditions.
- Improve herbaceous cover and dietary sources for pronghorn and other wildlife.
- Enhance pronghorn habitat and facilitate pronghorn migration.

SILVICULTURAL TREATMENTS:

Across all treatment areas, retain an even mixture of small, medium, and large trees. Refer to the Agua Fria Phase 1 Treatment Map for Grassland or Juniper designations.

1. Grasslands: retain 1-3 Junipers/acre, comprised of a mix of tree sizes, with preference to healthy, tree-form Junipers.
2. Juniper: reduce Juniper stocking to 5-10 ft² BA - average spacing 60-70'. Retain large snags as available.

Focus tree retention on leaving the healthiest trees with higher crown ratios rather than simply by spacing.
Do not implement any treatment in a 300' buffer along creeks in Units 2 and 3.
Pile slash in areas of densely stocked Juniper, and scatter slash in areas of lower density.
Utilize a combination of pile and broadcast burning to reduce treatment slash.

FUTURE MANAGEMENT:

Retain a mix of ages and promote herbaceous cover, and facilitate pronghorn migration throughout the Agua Fria Basin.